

METHOD FOR PREPARING THE REACTIVE TINTING COMPOUND AND THE TINTED CONTACT LENS

ABSTRACT OF THE DISCLOSURE

A method for preparing the tinted contact lens with the covalently bonded novel reactive tinting compound is disclosed. The reactive tinting compound with mono vinyl functionality is prepared by reacting the reactive dye with a hydrophilic monomer containing both pendent hydroxyl and vinyl groups under an alkaline condition. The water soluble reactive dyes containing either difluoro-chloropyrimidine or β -sulphatoethylsulphone reactive groups are used for synthesis of the reactive tinting dye. The lens forming materials is photo-polymerized in the presence of the reactive tinting compound to prepare a tinted contact lens. The reactive tinting compound is copolymerized with the lens forming monomers in a single photo-polymerization step that required no subsequently alkaline soaking or developing step as used in the prior art. In addition, the covalently bonded dye is stable and durable in the lens and does not fade or leach out after multiple high-pressure thermal sterilization.

Table 1: Selected Properties of Prepared Tinted Contact Lens

The Reactive Tinting Compound Added	Water Content (%)	Lens Diameter (mm)[#]	Tensile Strength (Kg/cm²)[*]	Elongation (%)	Tinting Stability⁺
Example 1	54.4 (0.8) ^s	14.0	2.2	123±11	Stable
Example 2	55.1 (0.9)	14.1	2.1	120±12	Stable
Example 3	54.6 (0.8)	14.0	2.2	118±10	Stable
Example 4	54.8 (0.7)	14.0	2.1	121±13	Stable
Example 5	54.3 (0.9)	14.1	2.1	122±12	-Stable
Control (no dye)	55.2 (0.7)	14.1	2.2	126±11	

^s (): standard deviation.

[#] 99% confidence interval of lens diameter is less than ±0.2 mm

^{*} standard deviation of tensile strength is less than 0.2 Kg/cm²

⁺ Stable : tinting color is not faded or migrated after cyclic autoclave aging.

-Stable : a small noticeable fading after cyclic autoclave aging.